MANAGING OCCUPATIONAL SAFETY AND HEALTH (OSH) CULTURE PRACTICES AT SMALL AND MEDIUM (S&M) MALAYSIA MANUFACTURING SECTOR

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ABSTRACT

OSH is important in Malaysia workplace. In this paper we would like to include the culture practices as a new parameter in order to improve the number of percentage of the accidents in the workplace. Four components namely self-regulation, top management commitment, enforcement & promotion and safety culture influence the improvement of reducing of accident case in the workplace will be studied. A ten-month accident data at a manufacturing sector was taken to be analyzed on the cultural practice. From the analysis, it was found that with good understanding, commitment, practices, and behavior will reduce the accident case at the workplace. This research highlight the problems of accident case in the Malaysian workplace at manufacturing sector which are probably due to lack of safety culture and non-compliance of the requirements of Occupational Safety and Health Act (OSHA) 1994. This study promotes OSH at Small and Medium Malaysia manufacturing sector through several management practices such training and safety management, understanding on self-regulation, enforcement, and promotion. The documentary analysis was used as a method for data collection from DOSH.

Keyword: OSH understanding, commitment, practices, behavior, workplace safety culture

1.0 INTRODUCTION

The manufacturing sector registered a sales value of RM65.1 billion in August 2017. Malaysia's August manufacturing sales continue to record a strong growth of 16.5 percent, rising to RM65.1 billion as compared to RM55.9 billion reported a year ago. However, the statistics seemed dormant between 2015 and 2016 for the manufacturing sector with 2041 case recording in year 2015 increase to 2333 case in the year 2016, total increase 292 cases (DOSH), from the

data, it is the timing for our legislation agency to create an awareness among S &M employers and employees work together to achieve a mission in OSHA. National OSH Master Plan 2010-2015 target to reduce death cases to 12.4 per 100,000 workers and injury case to 6.1 per 1,000 workers but National OSH Master Plan 2016-2020 death target is review 4.36 per 100,000 workers and injury reduce to 2.53 per 1,000 workers.

1.1 Problem Statement

Lacking management and conforming to the basic requirement of occupational safety and health act (OSHA). Employers do not understand what is OSH and why need to spend more budget on it. Ashill, Carruthers & Krisjanous (2006) found that management commitment is manifested through various ways such as having safety education and training, giving rewards, and empowerment of employees to make decisions. Iceberg concept is to manage organization OSH management costing. Plan, Do, Check and Action concept is a proper concept to manage OSH (Tinham, 2013).

1.2 Poor Connecting Monitoring Between Industrial and Enforcement Departments

Small & Medium manufacturing lack knowledge, skills and other sources to implement OSH in their workplace. For example, human resource executive or staf may not expose to any skills in OSH and poor connecting monitoring knowledge between industrial and enforcement departments such as DOSH, for them, operation cost is more important compared to spend more money on OSH which is not value ended. Che Man (2010) found that majority of S&M face difficulty in implementing OSH as they lack expertise, resources, or manpower. Accidents at the workplace can be prevented if employers and employees are more sensitive or have good safety behavior (Makin, 1994; Christian, 2004).

1.3 Lack of Training and Development

Small and Medium (S&M) manufacturing sectors through human resource department need to improve their OSH practical to reduce accident cases, financial may be an issue but should not be a big issue because Malaysia government is preparing lots of incentives or grant for S&M implementing their OSH such as Department of Occupational Safety and Health, National Institute Occupational Safety and Health (Training & information), National Human Resource Center (NHRC)and Human Resource Development Fund (advice and Training Fund). Even some federation such Federation of Malaysia Manufacturer (FMM) and Malaysia Employers Federation (MEF) also can provide an advice and training to S&M with zero or minimum cost. Training is part of continuing education for adult learner, the problem is how to train foreign workers, most of the accident cases today are caused by foreign workers due to communication and language problems.

1.4 No Benchmarking on OSHA among S&M Manufacturing Sectors

This is a process to identify which organizations are implementing and practising in accordance with the laws and regulations. A proper OSH implementation is important to ensure compliance with laws and regulations and thus decreasing the compensation paid, understanding the concept of Ice-Berg will help S&M in reducing their costs in long-term. Studies by Suazo & Jaselskis (1993), Teo and Phang (2005) have found that safety measures taken in the workplace can lead to better safety performance. If safety problems and health risks in the work environment can be controlled, the country's economic competitiveness will improve. According to Dupre (2001), the “risk of having an accident at work is higher for workers in companies with fewer than 50 employees and for the self-employed".

1.5 Research Objectives

This objective is to get the right solution to a right problem, clearly defined objectives is very important. Defined objectives enlighten the way in which the researcher has to proceed. This study is to:

1. Analyse collaboration with enforcement departments such as DOSH in educating and sharing knowledge or any practice through workshops and seminars.

2. Analyse collaboration with training departments such as HRDF and NHRC in educating and sharing knowledge and costing practice through workshops and seminars.

3. Evaluate OSH at S&M manufacturing sector through internal and external enforcement audit.

2.0 METHODOLOGY

In this research, the triangulation data from different materials, different type of data sources from secondary research through combining multiple methods to get such documentary search from literature review, research journal, data analysis from DOSH or NIOSH are used to make sense of data.

3.0 RESULTS AND DISCUSSIONS

The manufacturing occupational accidents in Malaysia showed a continuous decline from the year 2016 to 2017 (January- April 2016 and January – April 2017) 815 cases to 643 cases as presented in Table 1 and Table 6.

Table 1: Numbers of victims manufacturing sectors 2016

	Nonpermanent Disability	Death	Permanent Disability
January16	156	1	9
February 16	188	2	4
Mar-16	191	3	3
Apr-16	249	4	5
TOTAL16 (815 cases)	784 784/815x100%=96.2%	10 10/815x100%=1.23%	21 21/815x100%=2.58%

Number of dealth in 2016:

$\frac{10}{815} = \frac{x}{100}$ x : unknown

$x = 1.23$

$\frac{1.23}{100} = \frac{x}{100000}$

x = 1230 people die in 100,000 people

$\therefore \frac{1230}{100000}$

Mean of death in 2016:

$\bar{x} = \frac{10}{4}$

$= 2.5$

Total dealth January – April 2016 is 10 cases from total accident at the same month is 815 cases (Table 1), percentage % of dealth is 1.23% where is equal to x, but if transfers to 100,000 workers, the dealth cases are equal to 1230 cases which same as 1.23%. The mean 2.5 is lower that the OSH Master Plan. Target is 4.36 per 100,000 workers, this shows that dealth cases from month January until April is well managed by the manufacturing sector but if possible zero case because it involves human life.

Table 2: Dealth of deviation 2016

Month	Reading	Deviation
January16	2.5-1	1.5
Febuary16	2.5-2	0.5
Mac 16	3-2.5	0.5
April 16	4-2.5	1.5
Average	2.5	1

$$\text{Relative deviation} = \frac{1}{2.5} \times 100\%$$

$$= 40\%$$

The coefficient of variation (CV), also known as relative standard deviation (RSD), is a standardized measure of dispersion of a probability distribution or frequency distribution.In this relative deviation, average reading is 2.5 and the deviation is 1, the relative deviation is 40%, showing result of inconstant and unstable due to the implementation and performance in managing OSH.

Number of injuries in 2016:

$\frac{805}{815} = \frac{x}{100}$ x : unknown

$x = 98.77$

$\frac{98.77}{100} = \frac{x}{1000}$

x = 987.7 people injured in 1000 people

$\therefore \frac{987.7}{1000}$

Mean of injuries in 2016:

$\overline{x} = \frac{784+21}{4}$

= 201.25

Total injuries January – April 2016 is 805 cases including permanent 21 cases and non permanent 784 (Table 1), total accident at the same month is 815 cases, percentage % of injuries is 98.77% which is equal to x = unknown, but if transfer to 1000 workers, the injuries cases are equal to 987 cases which same as 98.7%. The mean 201.25 is very high that the OSH Master Plan. Target is 2.53 per 1000 workers, this shows that injuries cases from month January until April is very poorly managed by the manufacturing sector.

Table 3: Injuries deviation 2016

Month	Reading	Deviation
January16	165	36.25
Febuary16	192	9.25
Mac 16	194	7.25
April	254	52.75
Average	201.25	26.375

$$\text{Relative deviation} = \frac{26.375}{201.25} \times 100\%$$

= 13.11

In this relative deviation, average reading is 201.25 and the deviation is 26.375, the relative deviation is 13.11%, showing result inconstant and unstable due to the implementation and performance in managing OSH is still not in the right condition, needs more improvement to reduce and stabilise the deviation and relative devitation which shows when reading is 165, deviation is 36,25 in first month but in Febuary and March reading increase to 192 and 194, the deviations are lower which are 9.25 and 7.25, showing that data is not constant and not stable to get the relative deviation.

Number of death in 2017:

$\frac{12}{657} = \frac{x}{100}$ x : unknown

$x = 1.83$

$\frac{1.83}{100} = \frac{x}{100000}$

x = 1830 people die in 100000 people

$\therefore \frac{1830}{100000}$

Mean of death in 2017:

$\overline{x} = \frac{12}{4}$

$= 3$

Total deaths January – April 2017 are 12 cases from total accidents in the same month that are 657 cases, percentage of death is 1.83% which is equal to x: unknown, but if transfer to 100,000 workers, the death cases are equal to 1830 cases which is same as 1.83%. The mean 3 is lower but increases 0.5 from year 2016 mean. The OSH Master Plan target is 4.36 per 100,000 workers, this shows that death case from month January until April 2017 is not managed well.

Table 4: Deviation of dealth 2017

Month	Reading	Deviation
Jan 17	2	1
Feb 17	5	2
Mac 17	2	1
April 17	3	0
Average	3	1

Relative deviation = $\frac{1}{3} \times 100\%$

= 33.33%

In this death relative deviation, average reading is 3 and the deviation is 1, the relative deviation is 33.33%, showing cases of death increase 2 but relative deviation is reducing compared to year 2016 due to the total cases are also reducing from 815 to 657, even the avearge reading increases to 3 but the deviation still maintains in 1 compared with year 2016, result is not constant and not stable due to the implementation and performance in managing OSH is still not in the right condition, needs more improvement.

Number of injuries in 2017:

$\frac{645}{657} = \frac{x}{100}$ x : unknown

$x = 98.17$

$\frac{98.17}{100} = \frac{x}{1000}$

x = 981.7 people injured in 1000 people

$\therefore \frac{981.7}{1000}$

Mean of injuries in 2017:

$\overline{x} = \frac{645}{4}$

= 161.25

Total injuries from January – April 2017 are 645 cases including permanent 40 cases and non-permanent 605, total accidents in the same month are 657 cases (Table 6), percentage % of injuries is 98.17% which is equal to x = unknown, but if transfer to 1000 workers, the injury cases are equal to 981.7 cases which are same as 98.1%. The mean 161.25 is very high but reducing from 201.25 from the year 2016. The OSH Master Plan. Target is 2.53per 1000 workers, this showing that injuries case from month January until April is very poorly managed by the manufacturing sector.

Table 5: Deviation of injuries

Month	Reading	Deviation
Jan 17	243	81.75
Feb 17	157	4.25
Mac 17	156	5.25
April 17	89	72.25
Average	161.25	40.875

Relative deviation = $\frac{40.875}{161.25} \times 100\%$

= 25.35%

In this relative deviation, average reading is 161.25 and the deviation is 40.87, the relative deviation is 25.35%, showing result is not constant and not stable due to the implementation and performance in managing OSH is still not in the right condition, needs more improvement to reduce and stabilise the deviation and relative devitation which showing when reading in 165 deviation is 36.25 in first month but in Febuary and March reading increases to 192 and 194, deviations are lower that are 9.25 and 7.25, showing that data is not constant and not stable to get the relative deviation.

Table 6: Numbers of victims manufacturing sectors

	Nonpermanent Disability	Death	Permanent Disability
January17	231	2	12
February17	145	5	12
Mar-17	150	2	6
Apr-17	79	3	10
Total17 (657cases)	605 605/657×100%=92.09%	12 12/657×100%=1.83%	40 40/657×100%=6.10%

Manufacturing sector faces many challenges to monitor OSH requirements that are adhered to in spite of trying to stay competitive and survive with its limited capital or financial resources. From Table 6 data, non-permanent disability decreased 4.11% in the year 2017 from 784 cases in the year 2016 to 605 cases in the year 2017, drop 179 case, it may consider not serious case but death increases 0.6% in the year 2017 even the death cases are 10 in the year 2016 and 12 in year 2017 comparatively, death cases increase if compared to total cases in the year 2016 (January – April) which are 815 cases and 2017 (January to April) total cases drop to 657 with increase of 2 death cases, this means with lower total cases but manufacturing sector still can not reduce the death cases, it shall drop 10.73% as the total case is dropped 10.73% too, but total case in the year 2017 is 815 drops to 657 difference 158 case, but permanent disability increase 3.52% in the year 2017 from 21 cases in the year 2016 to 40 case in 2017, this data compare January 2016 –April 2016 and January 2017 – April 2017.

This proves that manufacturing sector is still not aware of OSH especially S&M sector (Table 6), Even total cases drop 158 compared with the same month at 2016 (Table 1) but deaths still increase and non-permanent disability performance is not stable as showing in Table 7.

Table 7: Numbers of victims manufacturing sectors

	Nonpermanent Disability	Death	Permanent Disability
May-July16	519	22	27
August-Oct16	448	7	13
May-July17	536	20	39
August-Oct 17	418	14	7

4.0 BEST PRACTICES

Self-regulation, top management commitment, enforcement and promotion and culture improvement are the progresses shall be pratised by all manufacturing sectors especially small and medium to upgrade their OSH management system.

4.1 Self-Regulation

Employees practise what has assigned from the top management as what has stated in internal regulation, check what is the best practice can be implemented in work towards the green environment, training and education are one of the sources to make sure all concerned people know what and who need to practice OSH in their workplace. Monitor employees behavior in their workplace, make sure follow the regulation set by top management or OSH committee members are carried out their duty. Monitoring of contractors and other visitors and their behaviors when entering the organization is importance to make sure none of any regulation being broken due to their bad behavior.

4.2 Top Management Commitment

Top management Commitment is very important to carry out any activities such company safety policy and others related to OSH. Without commitment from top management all activities will consider fail, without budget and approved by top management all activities cannot be implementing, commitment to follow and obey any regulation from time to time such law or regulation, Commitment to assign a person in charge (PIC) for in charge in OSH Environment, example OSHA supervisor or officer and setting a OSH committee members with fully authorised to the chairman carry up their duties without fear.

4.3 Enforcement and Promotion

DOSH has initiated action plans for implementation to improve OSH. Among them, special consideration has to be given to the small and medium manufacturing industries where fatalities are common. Skill and knowledge upgrade through training & education will increase employees awareness on workplace safety and health. Setting organization safety policy to prove top management commitment. Che Man (2010) found that majority of S&M face difficulty in implementing OSH as they lack expertise, resources, or manpower.DOSH has been carrying out promotions and training to help raise occupational safety and health awareness among employees and employers (BERNAMA, 2013). S&M Manufacturing are very concerned because the newly introduced legislation is putting pressure on them as employers to be more responsible for elements outside their control (Budworth, 2000).

4.4 Safety Culture Improvement

It is important to the employer through their manager to practise a good OSH management culture; this culture shall practise leadership through the example which the commitment from the top to practise a good culture begins from them. A good culture needs time to implement and practise, it needs to implement step by step to avoid culture shock which may give negative impact on the organization. The important point is they must ready to change their culture in right time.

Monitor staffs behavior to follow any best practice in OSH environment. Monitor employees behavior in their workplace and it involves a diverse culture and language from a different

country such Nepal, Indonesia, Vietnam need a proper strategic, to make sure they follow the regulation set by top management or OSH committee members by carried out their duty safely.

5.0 CONCLUSION

OSH cases at the workplace can be avoided with the teamwork from both employers and employees. Workplace accidents are preventable and safety measures could help reduce the severity of workplace injuries. Workplace fatalities and permanent disabilities were more likely to be severe compared to non-permanent disabilities. The best practices among industrial players, especially with respect to occupational safety and health, should be shared within the industry. The top management, workers, and DOSH must combine forces and try to prevent future workplace accidents by addressing the root cause of accidents. It is undeniable that a combination of rules from the government, attitudes from the workers and good practices initiated by the top management will create the positive safety culture in the workplace.

Employers understand on co-operate social responsibility (CSR) in OSH and environment such creating a better and healthy working environment not only for an employee but also the surrounding community through some open door activity with the community members such seminar, inviting plan visit. Important is to understand what they what to achieve in their OSH plan and vision. Supporting from Department Occupational Safety Health (DOSH), Department of Environmental (DOE), and National Institut Occupational Safety Health (NIOSH) will ensure S&M manufacturing understand what is OSH and Environment at the Workplace, create their commitment through implementing OSH at the workplace, it can build a best practice among them to improve their working behavior towards safety and clean environment for a better surrounding environment.

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REFERENCES

Ashill, N.J., Carruthers, J. and Krisjanous, J. (2006). "The effect of management commitment to service quality on frontline employees' affective and performance outcome: an empirical investigation of the New Zealand public healthcare sector". *International Journal of Nonprofit and Voluntary Sector Marketing,11*: 271-287.

AuYong, H., Zailani, S. and Surienty, L. (2014). *"Understanding Safety Dimensions among Logistics Personnel in Malaysia: Approaches from Social Psychology".* International Conference on Industrial Engineering and Operations Management, Bali, Indonesia, 7–9th January 2014.

BERNAMA. (2013). DOSH records 1,248 workplace accidents in 10 sectors. 10 October.

Budworth, T. (2000). *"Future challenges for insurance and risk management".* Proceedings of the IOSH Conference, (IOSHC' 00).

Che Man. (2010). *"DOSH on SMI issues and solutions"*, AboutSafety.com, dated 20 January 2010.

Christian, M. S., Bradley, J. C., Wallace, J. C., and Burke, M. J. (2009). "Workplace safety: A meta-analysis of the roles of person and situation factors". *Journal of Applied Psychology*, *94:* 1103-1127.

Dupre, D. (2001).*"Accidents at work in the EU 1998- 1999".* Statistics in Focus Theme 3Eurostat, pp: 1-8.

Eun H. Lee, George I. Christopoulos, Kian W. Kwok, Adam C. Roberts, and Chee- Kiong Soh. (2017). *"A Psychosocial Approach to Understanding Underground Spaces"*. Published: 28 March 2017. Doi: 10.3389/fpsyg.2017.00452.

Goetsch, D.L. (1999).*"Occupational safety and health for technologists, engineers, and managers"*. New Jersey: Prentice-Hal.

Hassard, J. Flintrop, T. Clausen, K. Muylaert. (2012). *Motivation for employees to participate in workplace health promotion*. A report prepared for the European Agency for Safety and Health at Work, Luxembourg, pp. 1–29.

Hui-Nee. (2014). "Safety Culture in Malaysian Workplace: An Analysis of Occupational Accident", *Health and the Environment Journal*, *Vol. 5*, No. 3: 32-43.

International Labour Organization. (2012). DOSH definition report 24 April.

Lahm, F. (1997). "Small business and occupational health and safety advisors". *Safety Science, 25*: 153-161.

Makin, P.J. and Sutherland, V.J. (1994). "Reducing Accidents Using a Behavioural Approach". *Leadership & Organization Development Journal*, *15*: 5-10.

McKinney, P. (2002). *"Expanding HSE's ability to communicate with small firms: A targeted approach".* Prepared by AEA Technology plc for the Health and Safety Executive, (No.420/2002).

Suazo, G.A., and Jaselskis, E.J. (1993). "Comparison of Construction Safety Codes in the United States and Honduras". *Journal of Construction Engineering and Management*, *119*(3): 245-255.

Teo, A. L., and Phang, T. W. (2005). "Singapore's Contractors' Attitudes Towards Safety Culture". *Journal of Construction Research*, *6*: 157-178.

Tinham, B. (2013). Check, Act, Plan, Do. *Plant Engineer*, (March-April): 18–19.

www.niosh.gov.my journal. (2012). Conformity to Occupational Safety and Health Regulations in Small and Medium Enterprises. *Journal Occupational Safety & Health 9*: 1-6.